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Estimating the Value-at-Risk from High-frequency Data

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[full text (PDF)]

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We present two alternative approaches for estimating VaR. Both approaches are based on the observation that each trading day is very diverse and we can observe K different phases of the trading day. We can not observe from which of the K phases our observations rt are. Therefore, we apply Gibbs sampler to estimate parameters from our data. In the latter approach, we apply Dubins and Schwarz theorem (Kallenberg, 2000), which allows us to re-scale our portfolio returns rt and to get normal distributed returns rJt~N(0;Jt). To verify our approaches, we make an empirical application.

Keywords: Data augmentation, Gibbs sampler, Quadratic variation, Time changed Brownian motion

JEL Classification: C15, C53

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